

<b>Boralex Fort Fairfield, Inc.</b>	)	<b>Department</b>
<b>Aroostook County</b>	)	<b>Findings of Fact and Order</b>
<b>Fort Fairfield, Maine</b>	)	<b>Part 70 Air Emission License</b>
<b>A-181-70-B-M</b>	)	<b>Amendment #1</b>

After review of the Part 70 minor modification application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A, Section 344 and Section 590, the Department finds the following facts:

## **I. Registration**

### **A. Introduction**

FACILITY	Boralex Fort Fairfield, Inc. (Boralex)
LICENSE NUMBER	A-181-70-B-M
LICENSE TYPE	Part 70 Administrative Revision
NAIC CODES	221119
NATURE OF BUSINESS	Electrical Generation Station
FACILITY LOCATION	P.O. Box 430 Cheney Grove Road., Fort Fairfield

### **B. Description of Part 70 Minor Modification**

Boralex Fort Fairfield, Inc. (Boralex) has requested the incorporation of additional language to exempt all opacity emissions occurring during periods of cold start-up as defined under MEDEP Chapter 101, for a period not to exceed 8 hours.

The facility is also seeking approval to identify unit cold start-up initiation as "first fire" versus the current use of the ID fan start, thus be more in keeping with the definition found in MEDEP Chapter 101 Section 3.A (as proposed for amendment) and consistent with other similar emission sources.

### **C. Application Classification**

The application for Boralex Fort Fairfield, Inc. does not involve a modification and does not involve a relaxation or substantial change in monitoring, testing, reporting or record keeping requirements. The application is for the modification of the facility's Part 70 Air Emission License to allow for an opacity exemption period increase for Boiler #1 during start-up, therefore, this application is being processed as a minor modification to the Part 70 License issued under Chapter 140 of the Department's regulations for a Part 70 source.

## **II Minor Revision Description**

### Visible Emissions

Boiler #1 is a wood-fired 523 MMBtu/hr boiler with a 130 MMBtu/hr oil-fired capacity. Boralex's Part 70 air emission license (A-181-70-A-I) requires that the facility operate Boiler #1 such that the visible emissions from the boiler do not exceed 20% opacity on a six-minute block average basis, except for one six minute block average per hour of not more than 27% opacity. Chapter 101, Part 3, paragraph E. of the MEDEP Regulations allows for the exemption from the visible emissions restriction during the first four hours following the initiation of cold start-up or planned shutdown, for boilers whose rated input capacity is 200 MMBtu/hr or greater, provided that operating records are available to demonstrate that the facility was being operated to minimize emissions. Boralex has applied to extend the exemption period from four hours from the initiation of cold start-up to eight hours from the initiation of cold start-up. In making the decision as to whether Boralex shall be granted an amendment to their current Part 70 license to extend the exemption period, the Department shall consider the extent to which Boralex has operated their facility, pursuant to 40 CFR Part 60.11 (d), in consistence with good air pollution control practice to minimize air pollution during periods of cold start-up.

Boiler #1 utilizes a multiclone (mechanical dust collector) and an electrostatic precipitator (ESP) as particulate matter control. When bringing the boiler online from a cold start-up, Boralex utilizes a standard operating procedure that was created in accordance with manufacturer's recommendations to maintain the safety of the boiler operators and the boiler itself and to realize the expected life of the boiler. Boralex also operates the ESP in accordance with manufacturer recommendations to maintain the safety of the operators and the ESP. The ESP manufacturer recommends that no fields of the ESP be energized until the exhaust gas temperature is greater than 350°F and the gas stream oxygen content is below 12%. When following the standard operating procedure, the period of time from starting the ID fan to the time when the exhaust gases are at 350°F is approximately eight (8) hours. Also, during start-up periods the efficiency of the multiclone is slightly reduced due to gas flow rates during start-up being lower than that of operations at normal firing rates. Due to these factors, during past start-up periods, Boralex has experienced numerous exceedences of the boiler opacity restriction. In an effort to reduce the exceedences, Boralex has worked with the ESP manufacturer to develop a plan to energize one of the three ESP fields to 10% when the exhaust gas temperature is 200°F and the oxygen content is below 12%. This has helped to reduce the opacity during start-up, however, Boralex still will have difficulty reducing the opacity to below the 20% opacity level during the first eight hours of start-up and continue to maintain the safety of the operators, the boiler and the ESP.

Boralex Fort Fairfield, Inc. has demonstrated to the Department that, consistent with best practical treatment requirements and other applicable standards, infrequent emissions excedences are unavoidable during cold start-up periods. The Department has made the determination that visible emissions from Boiler #1 shall be deemed in compliance with visible emissions requirements for the first eight (8) hours of a cold start-up period providing that the following requirements are satisfied:

1. Boralex must satisfactorily prove to the Department that the period of time during which the opacity excedence has occurred is a cold start-up,
2. Boralex must satisfactorily prove to the Department that Boiler #1, pursuant to 40 CFR Part 60.11 (d), has been operated in a manner consistent with good air pollution control practice to minimize air pollution during the cold start-up period.

#### Cold Start-up

- A. For the purposes of the exemption extension allowed by this permit, cold start-up shall be defined as the following:
  1. the boiler has not combusted fuel or produced measurable steam pressure for at least four hours;
  2. the boiler steam pressure in the steam drum is raised at a controlled rate from 0 psig.
- B. For the purposes of the exemption extension allowed by this permit, the beginning of cold start-up shall be defined as that time when the initial fire is in the boiler (first-fire). Upon initiating the fire in Boiler #1, the 8-hour period shall begin and shall continue regardless if the fire is removed from the boiler. If during the 8-hour period, Boralex experiences periods of time that are determined by the Department to be unavoidable malfunctions pursuant to 38 M.R.S.A., Section 349, Subsection 9, those periods of time shall not be counted as part of the 8-hour period.

#### Good Air Pollution Control Practice

For the purposes of the exemption extension allowed by this permit, good air pollution control practice shall include, but not be limited to the following:

1. Adhering to the manufacturer's suggested standard operating procedure when lighting off the boiler from a cold condition;
2. Inspection, before light-off, of the mechanical dust collector (Multiclone) system flues, hopper dust valves and hopper inlet and outlet tubes to ensure that the equipment is free of foreign matter and testing of the dust valves prior to light-off to ensure their proper function;

3. Proper operation of the mechanical dust collector system, which shall include hourly inspection of the system hopper dust valves during cold start-up to ensure the valves are free of foreign matter and operate freely;
4. Inspection, before light-off, of the ESP and ESP dust collection system equipment to ensure that the equipment is free of foreign matter and testing of the ESP hopper dust valves and dust distribution conveyor belts prior to light-off to ensure their proper function;
5. Proper operation of the ESP, which shall include hourly inspection of the system hopper dust valves and dust distribution conveyor belts during cold start-up to ensure the valves and belts are free of foreign matter and operate freely;
6. Inspection, before light-off, of the boiler fuel oil burners to ensure the burner is operating with the proper tip and that the tip is clean and able to operate properly.
7. Inspection, before light-off, of the boiler biomass fuel feeders to ensure that the feeders are free from obstruction and are able to operate in a manner that proper grate distribution can be achieved.
8. Proper operation of the biomass feeder system to ensure that the system is achieving proper grate distribution to ensure efficient and complete combustion.

To demonstrate that Boiler #1 has been operated in accordance with 40 CFR Part 60.11 (d) during periods of cold start-up, Boralex Fort Fairfield, Inc. shall maintain a cold start-up record that shall include opacities that exceed 20% opacity on a six-minute block average basis. The record shall include the time from the beginning of the cold start-up at which one field of the ESP is energized to 10% and when the ESP is energized to operating levels. The record shall also include a record of the results of pre-light-off inspections of the mechanical dust collections system, the ESP, the fuel oil burners and the biomass feeder system.

Boralex shall continuously monitor, record once every hour and include in the cold start-up record, the following surrogate parameter values during cold start-up:

- a. The skin temperature of the Boiler #1 steam drum;
- b. The steam pressure;
- c. The furnace gas temperature;
- d. The precipitator gas temperature;
- e. The precipitator gas oxygen content;
- f. Primary and secondary voltages on each field of the ESP;
- g. Primary and secondary currents on each field of the ESP;
- h. Mechanical dust collection system hopper dust valve condition;
- i. ESP hopper dust valve condition.

Boralex Fort Fairfield, Inc. shall submit a copy of the Cold start-up record to the Department within its quarterly emission report.

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<b>A-181-70-B-M</b>	<b>5</b>	<b>Amendment #1</b>

## **ORDER**

The Department hereby grants Part 70 Minor Modification A-181-70-B-M, subject to the conditions found in Part 70 License A-181-70-A-I and in addition to the following conditions:

**The following shall be in addition to Condition (22) of Part 70 License A-181-70-A-I:**

### **M. Cold Start-ups**

1. Visible emissions from Boiler #1 shall be deemed in compliance with visible emissions requirements for the first eight (8) hours of a cold start-up period providing that the following requirements are satisfied:
  - a. Boralex must satisfactorily prove to the Department that the period of time during which the opacity exceedance has occurred is a cold start-up,
  - b. Boralex must satisfactorily prove to the Department that Boiler #1, pursuant to 40 CFR Part 60.11 (d), has been operated in a manner consistent with good air pollution control practice to minimize air pollution during the cold start-up period.
2. Boralex Fort Fairfield, Inc. shall maintain a cold start-up record that shall include opacities that exceed 20% opacity on a six-minute block average basis. The record shall include the time at the beginning of the cold start-up (first fire), at energizing one field of the ESP to 10% and when the ESP is energized to operating levels. The record shall also include a record of the results of pre-light-off inspections of the mechanical dust collections system, the ESP, the fuel oil burners and the biomass feeder system.
3. The following shall constitute a cold start-up:
  - a. the boiler shall have not combusted fuel or produced measurable steam pressure for at least four hours;
  - b. the boiler steam pressure in the steam drum is raised at a controlled rate from 0 psig.
4. The following shall constitute, but not be limited to, good air pollution control practice:
  1. Adhering to the manufacturer's suggested standard operating procedure when lighting off the boiler from a cold condition;

2. Inspection, before light-off, of the mechanical dust collector (Multiclone) system flues, hopper dust valves and hopper inlet and outlet tubes to ensure that the equipment is free of foreign matter and testing of the dust valves prior to light-off to ensure their proper function;
  3. Proper operation of the mechanical dust collector system, which shall include hourly inspection of the system hopper dust valves during cold start-up to ensure the valves are free of foreign matter and operate freely;
  4. Inspection, before light-off, of the ESP and ESP dust collection system equipment to ensure that the equipment is free of foreign matter and testing of the ESP hopper dust valves and dust distribution conveyor belts prior to light-off to ensure their proper function;
  5. Proper operation of the ESP, which shall include hourly inspection of the system hopper dust valves and dust distribution conveyor belts during cold start-up to ensure the valves and belts are free of foreign matter and operate freely;
  6. Inspection, before light-off, of the boiler fuel oil burners to ensure the burner is operating with the proper tip and that the tip is clean and able to operate properly;
  7. Inspection, before light-off, of the boiler biomass fuel feeders to ensure that the feeders are free from obstruction and are to able operate in a manner that proper grate distribution can be achieved;
  8. Proper operation of the biomass feeder system to ensure that the system is achieving proper grate distribution to ensure efficient and complete combustion.
5. Boralex shall continuously monitor, record once every hour and include in the cold start-up record, the following surrogate parameter values during cold start-up:
- a. The skin temperature of the Boiler #1 steam drum;
  - b. The steam pressure;
  - c. The furnace gas temperature;
  - d. The precipitator gas temperature;
  - e. The precipitator gas oxygen content;
  - f. Primary and secondary voltages on each field of the ESP;
  - g. Primary and secondary currents on each field of the ESP;
  - h. Mechanical dust collection system hopper dust valve condition;
  - i. ESP hopper dust valve condition.
6. Boralex Fort Fairfield, Inc. shall submit a copy of all cold start-ups records to the Department within its quarterly emission report.

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(40) This amendment shall expire concurrently with Part 70 License A-327-70-A-I.

DONE AND DATED IN AUGUSTA, MAINE THIS                      DAY OF                      2003.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: \_\_\_\_\_  
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: **October 3, 2002**

Date of application acceptance: **October 9, 2002**

Date filed with the Board of Environmental Protection \_\_\_\_\_

This Order prepared by Peter G. Carleton, Bureau of Air Quality.